

Agency Use

Permit No.:

MTG010274

Date Rec'd

9/17/12

Rec'd By

FORM
NMP

Nutrient Management Plan

READ THIS BEFORE COMPLETING FORM: Before completing this form (Form NMP), Concentrated Animal Feeding Operation (CAFO) operators need to read the General Permit, particularly Part IV.A. CAFO operators also need to read the "Instructions For Filling Out Form NMP," found at the back of the Form. Form NMP is intended to help CAFO operators develop a site-specific Nutrient Management Plan, in compliance with Part IV.A of the General Permit and all applicable State rules and statutes. Your Nutrient Management Plan must be maintained at the site as required in Part III of the General Permit. Sections B and C on your Form NMP must state the information exactly the same way as it was stated on the most recently submitted version of your Form 2B. Attach additional pages as necessary, indicating the corresponding section number on this NMP form. For additional help in filling out this form please read the attached instructions. The 2008 General Permit, current fee schedule, and related forms are available from the Water Protection Bureau at (406) 444-3080 or <http://www.deq.mt.gov/wqinfo/MPDES/CAFO.asp>

Section A - NMP Status (Check one):

- ☒ New No prior NMP submitted for this site.
☐ Modification Change or update to existing NMP.

Permit Number: MT _____ (Specify the permit number that was previously assigned to your facility.)

Section B - Facility or Site Information:Site Name Jerke FeedlotSite Location 10 miles southwest of Terry, Mont., on Old Highway 10Nearest City or Town Terry, Montana County Prairie**Section C - Applicant (Owner/Operator) Information:**Owner or Operator Name Homestead Cattle CompanyMailing Address 74 Blatchford RoadCity, State, and Zip Code Terry, MT 59349Phone Number 406.635.5396

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SEP 17 2012

DEQ/WPB
PERMITTING & COMPLIANCE DIV.

Section D - NMP Minimum Elements:**1. Livestock Statistics**

<i>Animal Type and number of animals</i>	<i># of Days on Site (per year)</i>	<i>Annual Manure Production (tons, cu. yds. or gal)</i>
1. 2,300 feeder cattle (backgrounding)	180	
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Method used for estimating annual manure production:

2. Manure Handling

Describe manure handling at the facility:

Manure from the feedlot is scraped by a professional pen cleaner once annually, and spread on fields after harvest, where it is tilled into the soil within a 30-day timeframe.

Frequency of Manure Removal from confinement areas:

Manure is removed from the confinement areas once annually.

Is this manure temporarily stored in any location other than the confinement area? ☐ Yes ☒ No

If so then how and where?

Is manure stored on impervious surface? ☐ Yes ☒ No

If yes, describe type and characteristics of this surface:

Section D - NMP Minimum Elements:

1. Livestock Statistics

<i>Animal Type and number of animals</i>	<i># of Days on Site (per year)</i>	<i>Annual Manure Production (tons, cu. yds. or gal)</i>
1. 2,300 feeder cattle (backgrounding)	180	1494 tons
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Method used for estimating annual manure production:

Manure Management Planner Software

2. Manure Handling

Describe manure handling at the facility:

Manure from the feedlot is scraped by a professional pen cleaner once annually, and spread on fields after harvest, where it is tilled into the soil within a 30-day timeframe.

Frequency of Manure Removal from confinement areas:

Manure is removed from the confinement areas once annually.

Is this manure temporarily stored in any location other than the confinement area? ☐ Yes ☒ No

If so then how and where?

Is manure stored on impervious surface? ☐ Yes ☒ No

If yes, describe type and characteristics of this surface:

6. Prohibiting Animals and Wastes from Contact with State Waters

Describe how animals and wastes are prohibited from direct contact with state waters:

Animals are held in confinement in the feedlot pens with permanent fencing. A professionally-designed waste water removal and filtration system has been designed that collects all water and runoff from the animal pens, and diverts it into a storage holding pond, where it is then filtered across a vegetative treatment area specially designed for this purpose.

Describe how chemicals and other contaminants are handled on-site:

Travis Choat, owner of Homestead Cattle Company, LLC, received his state pesticide applicator license and is certified to purchase, store and apply crop pesticides. Crop herbicides are purchased in and stored in approved containers, and in a normal production year, used within a 30-day time frame, so storage is limited. Any chemicals that are not used immediately are stored in sealed containers in a secure shop. A special container for used oil is on site, and when filled, delivered to a local business that collects and uses used oil. The owners have a garbage disposal contract and a dumpster that gets emptied every two weeks, and dispose of all approved garbage in this manner.

8. Best Management Practice (BMPS)

Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's **production area**. Indicate the location of these measures. Include a schedule for implementation of each of these measures. Examples of BMP measures could include but are not limited to: constructing ditches, terraces, and waterways above an open lot to divert clean water run on; installing gutters, downspouts and buried conduits to divert roof drainage; providing more roofed area; decreasing open lot surface area; repairing or adjusting water systems to minimize water wastage; using practical amounts of water for cooling purposes; recycling water if practical and applicable.

A waste collection system, designed by NRCS, is installed to collect all runoff from production area. The system consists of dikes to channel the runoff into a settling basin. Once the settling basin reaches a level the pollutants run onto a vegetative treatment area below the basin. In 1997 a clean water diversion system was designed and installed by NRCS to keep clean water out of the production area.

Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's **land application area**. Indicate the location of these practices. If not already in use, include a schedule for implementation of each of these measures. Attached details and specifications may be used to supplement this description. Examples of BMP measures could include but are not limited to: maintaining setbacks from surface waters for manure applications; managing irrigation practices to prevent ponding of wastewater on land application sites; never spray irrigating wastes onto frozen ground; consulting with the Department prior to applying any liquid waste to frozen or snow-covered ground; applying wastes at agronomic rates.

Plant sampling/tissue analysis	yes/no	Rotational grazing	yes/no
Conservation or reduced tillage	yes/no	Manure injection or incorporation	✓ yes/no
Terraces or other water control structures	yes/no	Contour plantings	yes/no
Riparian buffers or vegetative filter strips	✓ yes/no	Winter "scavenger" or cover crops	yes/no

Other examples Nutrient Management plan, Conservation Cropping System, Residue Management
Conservation Crop Rotation

9. Implementation, Operation, Maintenance and Record Keeping – Guidance

The permittee is required to develop guidance addressing implementation of NMP, proper operation and maintenance of the facility, and record keeping as described in Part II of the permit.

Has a guidance document been developed for the facility? ✓ Yes No

Certify the document addresses the following requirements:

Implementation of the NMP:	✓ Yes	No
Facility operation and maintenance:	✓ Yes	No
Record keeping and reporting:	✓ Yes	No
Sample collection and analysis:	✓ Yes	No
Manure transfer:	✓ Yes	No

Provide name, date and location of most recent documentation:

NRCS developed NMP, August 2012

If your answer to any of the above question is no, provide explanation

Section E – Land Application

Will manure be land applied to land either owned, rented, or leased by the owner or operator of the facility?

No If no, then provide an explanation of how animal waste at this site are managed.

■ Yes If yes, then the information requested in Section E must be provided.

Photos and/or Maps

Attach an aerial photograph or map of the site where manure is to be applied. (Use multiple photos/maps if necessary to show required details.) The photo(s)/map(s) must be printed on no larger than an 11"x17" piece of paper, and must clearly identify the following items:

- Individual field boundaries for all planned land application areas
- A name, number, letter or other means of identifying each individual land application field
- The location of any down-gradient surface waters
- The location of any down-gradient open tile line intake structures
- The location of any down-gradient sinkholes
- The location of any down-gradient agricultural well heads
- The location of all conduits to surface waters
- The specific manure/waste handling or nutrient management restrictions associated with each land application field.
- The soil type(s) present and their locations within the individual land application field(s)
- The location of buffers and setbacks around state surface waters, well heads, etc.

Land Application Equipment Calibration

Describe the type of equipment used to land apply wastes and the calibrating procedures:

Manure spreader is calibrated by weighing the loads and calculating width of spread times distance to distance to spread and adjusted accordingly with speed and output from the spreader

Manure Sampling and Analysis Procedures

A representative manure sample will be analyzed a minimum of once annually for Total Nitrogen, and Total Phosphorus. Analysis results will be reported in lbs/ton or lbs/1,000 gal. Results of these analyses will be used in determining application rates for manure, litter, and process wastewater.

Manure Sample collection will occur according to the following method:

■ The recommended method(s) found in Section 5 of Department Circular DEQ 9

Other (describe) _____

Soil Sampling and Analysis Procedures

A representative soil sample from the top 6 inch layer of soil in each field will be analyzed for phosphorus content at least once every five years. Analyses will be conducted by a qualified laboratory, using the Olsen P test. Results will be reported in parts per million (ppm) and will be used in determining application rates for manure, litter, and process wastewater.

Soil sample collection will occur according to the following method:

■ The recommended method(s) found in Section 5 of Department Circular DEQ 9

Other (describe) _____

d) The permittee will complete the Nutrient Budget Worksheet, below, for each crop grown on each field to which manure or process waste water is or may be applied during the first year of application. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

Nutrient Budget Worksheet

Year	2012	Site/Field: 3	26 ton Corn Silage			
Nutrient Budget		Nitrogen-based Application			Phosphorus-based Application	
NUTRIENTS		N	P	K		
	Crop Nutrient Needs, lbs/acre included in Department Circular DEQ 9	234	69	88		
minus	Available nutrients from Soil Sample	40				
minus	Credits from previous legume crops, lbs/acre (from DEQ-9), as applicable	0				
minus	Residuals from past manure production, lbs/acre (lbs/acre applied in previous year(s) x fractions listed in DEQ-9)	0				
minus	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre					
minus	Nutrients supplied in irrigation water, lbs/acre					
equals	Additional Nutrients Needed, lbs/acre	194	69	88	0	
	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1,000 gal (from manure test)	42.2				
times	Nutrient Availability factor (for Nitrogen based application see DEQ-9, below; for Phosphorus based application use 1.0)	0.25	1.0	1.0		
equals	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal	10.6	14.6	0.0	0	
	Additional Nutrients needed, lbs/acre (calculated above)	194	69	88		
divided by	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal (calculated above)	10.6	14.6	1.8		
equals	Manure Application Rate, tons/acre or 1,000 gal/acre	18.4	4.7	48.9	#DIV/0!	

Comments:

Soil test P in ppm is less than 25 so N based application rate used for this field

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and <u>spreadable acres</u> for each (for fields with identical crops and soils type):	
Field Name	3 Spreadable acres 32.4 ac.
Crop 1 (year2 thru 5) plant species	Corn Silage
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2012, 2014, 2015
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

The permittee will complete the Nutrient Budget Worksheet, below, for each crop grown on each field to which manure or process waste water is or may be applied during the first year of application. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

Nutrient Budget Worksheet		26 ton Corn Silage			
Year	2012	Site/Field: 4	Nitrogen-based Application		Phosphorus-based Application
NUTRIENTS			N	P	K
	Crop Nutrient Needs, lbs/acre included in Department Circular DEQ 9		234	20	62
minus	Available nutrients from Soil Sample		62		
minus	Credits from previous legume crops, lbs/acre (from DEQ-9), as applicable		0		
minus	Residuals from past manure production, lbs/acre (lbs/acre applied in previous year(s) x fractions listed in DEQ-9)		0		
minus	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre				
minus	Nutrients supplied in irrigation water, lbs/acre				
equals	Additional Nutrients Needed, lbs/acre		172	20	62
	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1,000 gal (from manure test)		42.2	23.4	
	Nutrient Availability factor (for Nitrogen based application see DEQ-9, below; for Phosphorus based application use 1.0)		0.25	1.0	1.0
times	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal		10.6	23.4	0.0
	Additional Nutrients needed, lbs/acre (calculated above)		172	20	62
divided by	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal (calculated above)		10.6	23.4	1.8
equals	Manure Application Rate, tons/acre or 1,000 gal/acre		16.3	0.9	34.4

Comments:
 Soil test P is 54 ppm. Phosphorus based crop removal rates used. 3.8 pounds P removed per ton of silage.
 $26\text{ton/ac.} \times 3.8 \text{ pounds P/ton} = 100 \text{ pounds P removed by crop. } 23.4 \text{ pounds P/ton of manure.}$
 Minimum setting on spreader is 5 ton per acre.

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and <u>spreadable acres</u> for each (for fields with identical crops and soils type):	
Field Name	4 Spreadable acres 13.9 ac
Crop 1 (year2 thru 5) plant species	Corn Silage
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2012, 2014, 2015
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

d) The permittee will complete the Nutrient Budget Worksheet, below, for each crop grown on each field to which manure or process waste water is or may be applied during the first year of application. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

Nutrient Budget Worksheet

Year	2012	Site/Field: 6	26 ton Corn Silage			
Nutrient Budget		Nitrogen-based Application			Phosphorus-based Application	
NUTRIENTS		N	P	K		
	Crop Nutrient Needs, lbs/acre included in Department Circular DEQ 9	234	20	62		
minus	Available nutrients from Soil Sample	44				
minus	Credits from previous legume crops, lbs/acre (from DEQ-9), as applicable	0				
minus	Residuals from past manure production, lbs/acre (lbs/acre applied in previous year(s) x fractions listed in DEQ-9)	0				
minus	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre					
minus	Nutrients supplied in irrigation water, lbs/acre					
equals	Additional Nutrients Needed, lbs/acre	190	20	62	100	
	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1,000 gal (from manure test)	42.2	23.4		23.4	
times	Nutrient Availability factor (for Nitrogen based application see DEQ-9, below; for Phosphorus based application use 1.0)	0.25	1.0	1.0	1	
equals	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal	10.6	23.4	0.0	23.4	
	Additional Nutrients needed, lbs/acre (calculated above)	190	20	62	100	
divided by	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal (calculated above)	10.6	23.4	1.8	23.4	
equals	Manure Application Rate, tons/acre or 1,000 gal/acre	18.0	0.9	34.4	4.273504274	

Comments:

Soil test P is 39 ppm. Phosphorus based crop removal rates used. 3.8 pounds P removed per ton of silage.
 26ton/ac. x 3.8 poundsP/ton = 100 pounds P removed by crop. 23.4 pounds P/ton of manure.
 Minimum setting on spreader is 5 ton per acre.

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and <u>spreadable acres</u> for each (for fields with identical crops and soils type):	
Field Name	6 Spreadable acres 15 ac
Crop 1 (year2) plant species	Corn Silage
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2012, 2014,
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater

Crops and Manure		
Field Name and <u>spreadable acres</u> for each (for fields with identical crops and soils type):		
Field Name	6 Spreadable acres	15 ac
Crop 1 (year3) plant species	Grain Sorghum	
Irrigated (Y/N)	Yes	
Yield Goal (ton/ac or bushel/ac)	80 bu/ac.	
N Content of soil as nitrate (lbs/acre or ppm)		
P Content of soil as P2O5 (lbs/acre or ppm)		
Time of Year When Application will Occur (month)	September	
Application frequency (per year by month)	once annually	
Form of manure (liquid/solid)	solid	
Method of Application	spreader	
Is manure incorporated or broadcast?	incorporated within 2 days	
Frequency of Application (yearly, biannual, etc.?)	2012, 2014,	
Crop 2		
Irrigated (Y/N)		
Yield Goal (ton/ac or bushel/ac)		
N Content of soil as nitrate (lbs/acre or ppm)		
P Content of soil as P2O5 (lbs/acre or ppm)		
Time of Year When Application will Occur (month)		
Application frequency (per year by month)		
Form of manure (liquid/solid)		
Method of Application		
Is manure incorporated or broadcast?		
Frequency of Application (yearly, biannual, etc.?)		

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater

Crops and Manure	
Field Name and <u>spreadable acres</u> for each (for fields with identical crops and soils type):	
Field Name	6 Spreadable acres 15 ac
Crop 1 (year4) plant species	Spring Wheat
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	80 bu./ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2012, 2014,
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater

Crops and Manure	
Field Name and spreadable acres for each (for fields with identical crops and soils type):	
Field Name	6 Spreadable acres 15 ac
Crop 1 (year 4 & 5) plant species	Alfalfa
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	6 ton/ac
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2012, 2014,
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

d) The permittee will complete the Nutrient Budget Worksheet, below, for each crop grown on each field to which manure or process waste water is or may be applied during the first year of application. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

Nutrient Budget Worksheet

Year	2012	Site/Field: 7	26 ton Corn Silage			
Nutrient Budget		Nitrogen-based Application			Phosphorus-based Application	
NUTRIENTS		N	P	K		
	Crop Nutrient Needs, lbs/acre included in Department Circular DEQ 9	234	20	60		
minus	Available nutrients from Soil Sample	32				
minus	Credits from previous legume crops, lbs/acre (from DEQ-9), as applicable	0				
minus	Residuals from past manure production, lbs/acre (lbs/acre applied in previous year(s) x fractions listed in DEQ-9)	0				
minus	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	149		51		
minus	Nutrients supplied in irrigation water, lbs/acre					
equals	Additional Nutrients Needed, lbs/acre	53	20	9	100	
	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1,000 gal (from manure test)	42.2	23.4		23.4	
times	Nutrient Availability factor (for Nitrogen based application see DEQ-9, below; for Phosphorus based application use 1.0)	0.25	1.0	1.0	1	
equals	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal	10.6	23.4	0.0	23.4	
	Additional Nutrients needed, lbs/acre (calculated above)	53	20	9		
divided by	Available Nutrients in Manure, lbs/ton or lbs/1,000 gal (calculated above)	10.6	23.4	1.8	23.4	
equals	Manure Application Rate, tons/acre or 1,000 gal/acre	5.0	0.9	5.0	4.273504274	

Comments:

Soil test P is 45 ppm. Phosphorus based crop removal rates used. 3.8 pounds P removed per ton of silage.
 26ton/ac. x 3.8 poundsP/ton = 100 pounds P removed by crop. 23.4 pounds P/ton of manure.
 Minimum setting on spreader is 5 ton per acre.

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and spreadable acres for each (for fields with identical crops and soils type):	
Field Name	7 Spreadable acres 30.9
Crop 1 (year2 thru 5) plant species	Corn Silage
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2016
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and <u>spreadable acres</u> for each (for fields with identical crops and soils type):	
Field Name	Spreadable acres
	6.9 ac
Crop 1 (year2 thru 5) plant species	Corn Silage
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2014, 2015
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and spreadable acres for each (for fields with identical crops and soils type):	
Field Name	9 Spreadable acres 47.5
Crop 1 (year2 thru 5) plant species	Corn Silage
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2016
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and spreadable acres for each (for fields with identical crops and soils type):	
Field Name	Spreadable acres
11b	25.9
Crop 1 (year2 thru 5) plant species	Corn Silage
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2013, 2014
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and spreadable acres for each (for fields with identical crops and soils type):	
Field Name	12 Spreadable acres 2.4
Crop 1 (year2 thru 5) plant species	Corn Silage
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2013, 2014
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and <u>spreadable acres</u> for each (for fields with identical crops and soils type):	
Field Name	8 Spreadable acres 38.1
Crop 1 (year2 thru 5) plant species	Alfalfa
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2,015
Crop 2	
Irrigated (Y/N)	
Yield Goal (ton/ac or bushel/ac)	
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	
Application frequency (per year by month)	
Form of manure (liquid/solid)	
Method of Application	
Is manure incorporated or broadcast?	
Frequency of Application (yearly, biannual, etc.?)	

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and <u>spreadable acres</u> for each (for fields with identical crops and soils type):	
Field Name	8 Spreadable acres 38.1
Crop 1 (year2) plant species	Spring Wheat
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	80 bu/ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2,013
Crop 2 (year 3 thru 5)	Alfalfa
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	6 ton\ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	April
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2013

Land Application Data-Narrative approach

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

Crops and Manure	
Field Name and spreadable acres for each (for fields with identical crops and soils type):	
Field Name	10 Spreadable acres 6.1
Crop 1 (year 1 & 2) plant species	Corn Silage
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	26 ton\acre
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	September
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2013, 2014
Crop 2 (year 3 thru 5)	Alfalfa
Irrigated (Y/N)	Yes
Yield Goal (ton/ac or bushel/ac)	6 ton\ac.
N Content of soil as nitrate (lbs/acre or ppm)	
P Content of soil as P2O5 (lbs/acre or ppm)	
Time of Year When Application will Occur (month)	April
Application frequency (per year by month)	once annually
Form of manure (liquid/solid)	solid
Method of Application	spreader
Is manure incorporated or broadcast?	incorporated within 2 days
Frequency of Application (yearly, biannual, etc.?)	2013, 2014

Section F - CERTIFICATION**Permittee Information:**

This Form NMP must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print)

Tamara J. Choat

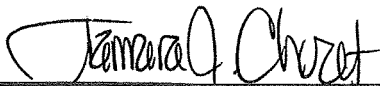
B. Title (Type or Print)

Owner, Homestead Cattle Company, LLC

C. Phone No.

406.635.5396

D. Signature



E. Date Signed

9.12.12

Return the Form NMP, Nutrient Management Plan to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

RECEIVED

SEP 17 2012

DEQ/WPB
PERMITTING & COMPLIANCE DIV.

Hornestead Cattle Company Land Application Fields

FLD 1
9.6 ac.

FLD 6
15.0 ac.

FLD 11
17.5 ac.

Legend



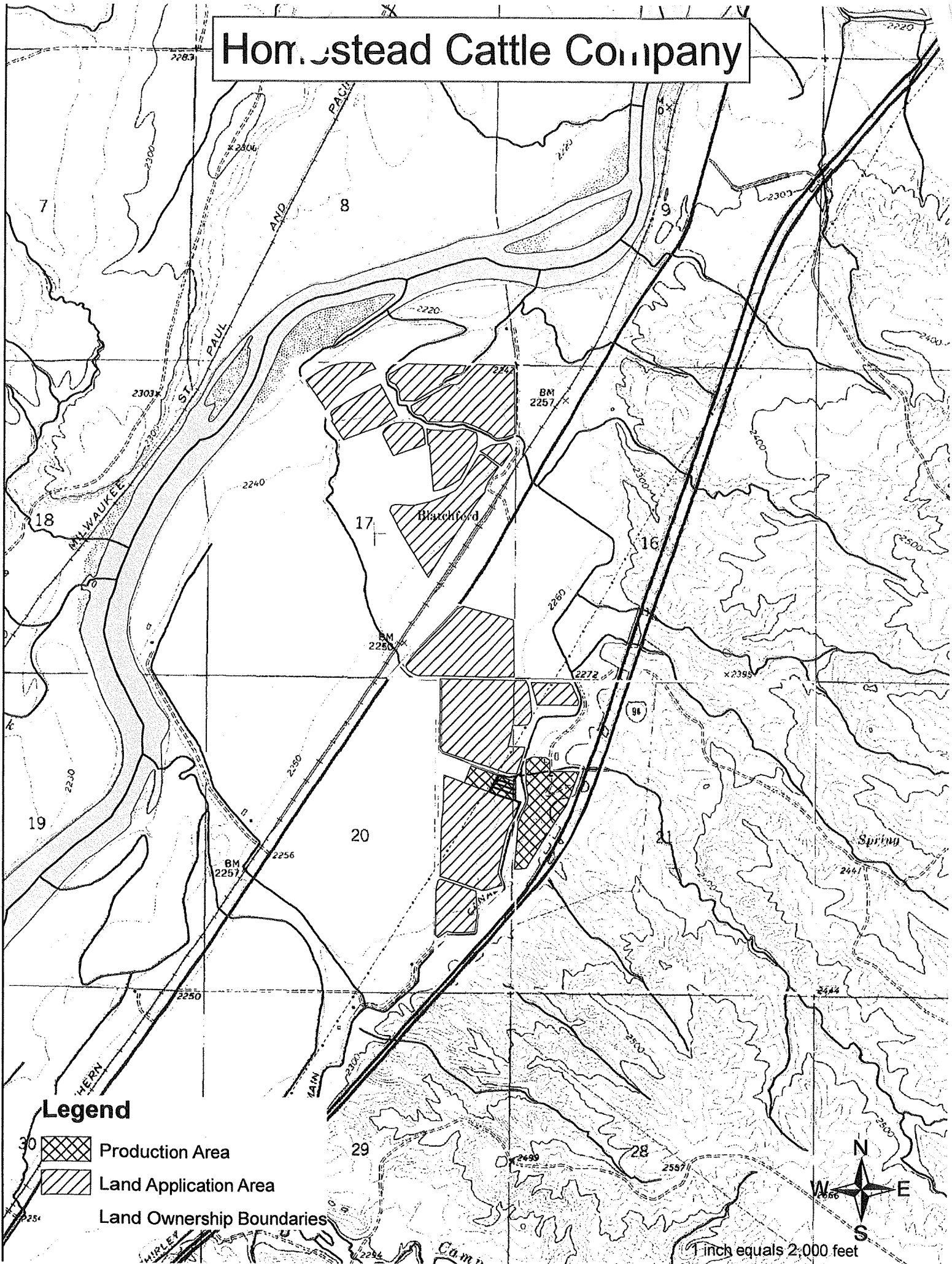
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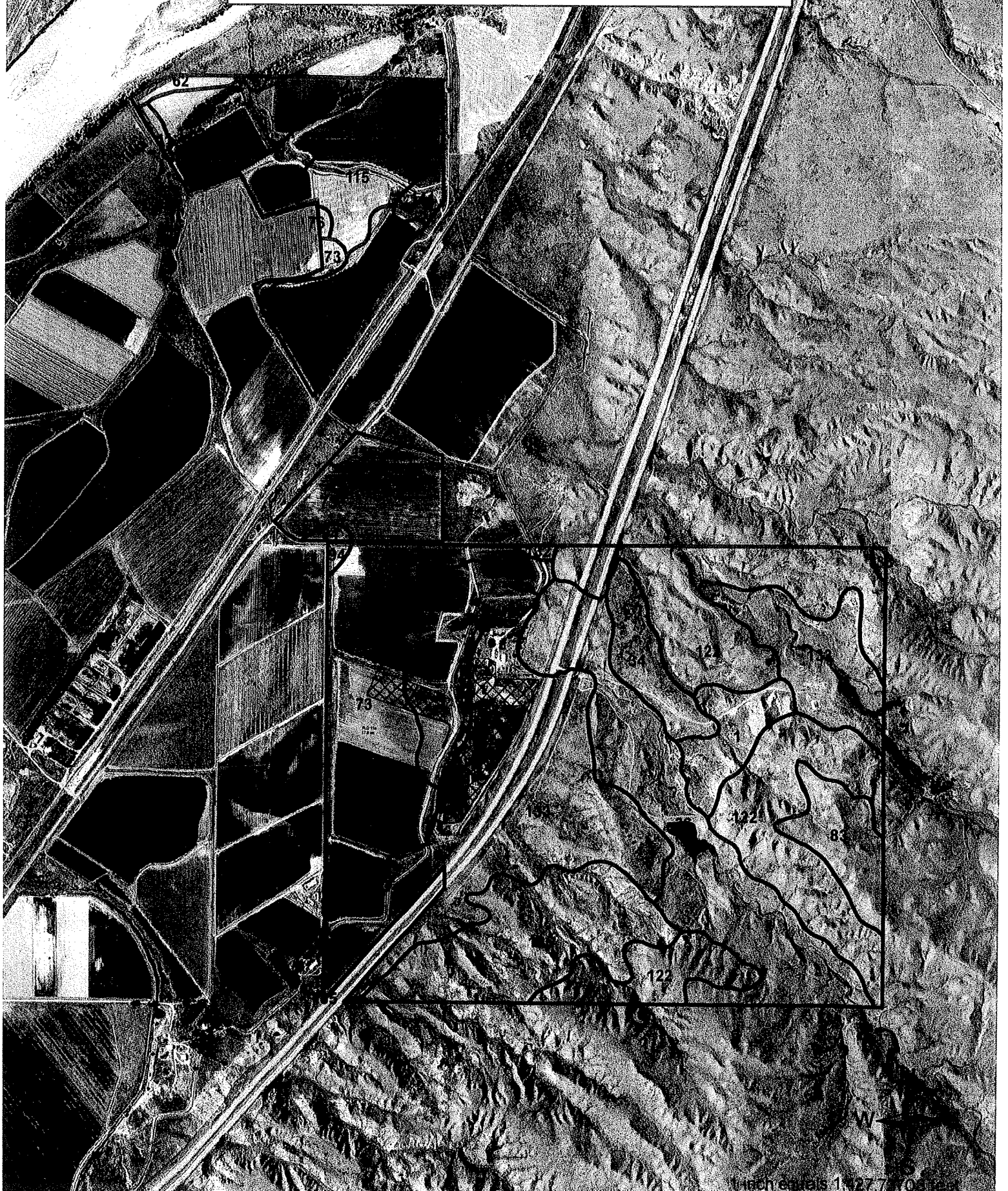
Product

1 inch equals 1000 feet

Homestead Cattle Company



Homestead Cattle Company Soils Map



Component Legend

Prairie County, Montana

Map unit symbol and name	Pct. of map unit	Component name	Component kind	Pct. slope		
				Low	RV	High
12:						
Busby fine sandy loam, 0 to 2 percent slopes						
	85	Busby	Series	0	1	2
73:						
Kobase silty clay loam, 0 to 2 percent slopes						
	85	Kobase	Series	0	1	2
76:						
Kremlin loam, 0 to 2 percent slopes						
	85	Kremlin	Series	0	1	2
115:						
Spinekop silty clay loam, 0 to 2 percent slopes						
	85	Spinekop	Series	0	1	2
133:						
Yamacall-Busby complex, 2 to 8 percent slopes						
	50	Yamacall	Series	2	5	8
	40	Busby	Series	2	5	8

Background: The project is located approximately 26 miles northeast of Miles City, MT on old US Hwy 10. The producer has been feeding 2500 head of fall weaned calves into the late spring. The feedlot covers 22.4 acres of which 17.4 acres are pens, 0.4 acres of roof, 4.3 acres of roads and alleys and 0.3 acres of silage storage area. The initial design was started in 1997 by then Area Engineer Dave Jewell and included diversions to separate clean water from feedlot run-off. The feedlot is located just east of the Shirley Irrigation Ditch and the original design called for installing a siphon for the Shirley Ditch and installing a conveyance ditch for the wastewater over the top of the siphon. This was all installed in 2001. The plan was to continue with the conveyance ditch to a planned waste storage pond located in a field just West of and downhill from the Shirley Canal. This portion of the system was not completed and the wastewater appears to flow across this upper field and downhill to the west to a lower field. Presently the feedlot owner's daughter and son in law operate the facility and have plans to purchase it. In 2010 an option was presented to eliminate the waste storage pond and instead install a Vegetated Treatment Area (VTA) to accommodate the feedlot effluent. On June 27, 2012 Jerry Cline, Eng. Tech, Kathy Meidinger, SCT and James Woodring, FO Temp surveyed the feedlot area and the proposed VTA site. With the assistance of Karen Hoffman, Hydrology and Water Quality Engineer a VTA and Solid/Liquid Waste Separation Facility (Settling Basin) design was undertaken by Kathy Meidinger and Jerry Cline.

Proposal: Install a settling basin to separate out feedlot run-off solids and a VTA to take up the nutrients. A site just west of the Shirley canal was chosen because the existing system already flows to this area. There is room for a Settling Basin 40' wide x 320' long x 3' deep and a 240' wide x 450' long VTA. The wastewater will enter the Settling Basin at the north end on a 10:1 sloped ramp. This will also serve as an ingress/egress for equipment used to clean the Settling Basin. This area has a soil cylinder intake family rate of 1.0 and the plan is to infiltrate the run-off onto the VTA to a 5' rooting depth. Because of the high infiltration rate the Settling Basin will be over-excavated by 1.5' and a local borrow source of soil with a cylinder intake rate of 0.3 will be used to line it. Initial calculations to flow a 25 year 24 hour event through the system showed that there was not enough VTA surface to accommodate the watershed yield. As per the NEH, Part 651, AWMFH Chapter 10 Montana Supplement MT10-6 a 6 hour event was used to compute the run-off through the system. With this method the VTA will handle the projected run-off through the Settling Basin, which stores 0.67 ac-ft, and onto the VTA. Flows from the Settling Basin will pass through 4 weirs with each having a length of 2.5 feet and 3:1 side slopes. The weirs will all be the same elevation and will be stabilized with a gravel road mix surface. An elevation monument will be driven into the bottom of each weir to assist the producer in maintaining a consistent elevation between all four weirs. The markers must extend below the frost line to prevent them from moving do to frost heave. The settling basin will temporarily store the 0.67 ac-ft then will be drained via an 8" PVC, SDR 41, 100 PSI PIP pipeline and through 70' of 8" gated pipe onto a separate VTA (lower VTA) downstream of the main VTA (upper VTA). The flow through the pipeline will be controlled with two 8" perforated risers (56-1" diameter holes per foot) with 4" orifice plates. A 4" thick 4' radius concrete pad will be poured around each intake to stabilize the risers and to control vegetative growth. The settling basin shall not impound water longer than 48 hours because it does not have an impermeable liner design that is commensurate with NRCS and DEQ standards. The lower VTA has a cylinder intake rate of 0.3 according to the Montana Irrigation Guide. On August 27, 2012 Robert Mitchell, Area Resource Soil Specialist and Rusty Irion, DC made a site visit to verify the soil information (See attached trip report) SRFR model runs were completed on both VTAs. The upper VTA area

BB&H Feedlot

Settling Basin and Vegetated Treatment Strip

OPERATION AND MAINTENANCE



Prepared by:
Jerry D. Cline, Eng. Tech
Prepared – September, 2012

SETTLING BASIN AND VEGETATED TREATMENT AREA MAINTENANCE

United States Department of Agriculture

Natural Resources Conservation Service

Montana

Operation and Maintenance Guide

For Your

Water and Sediment Control Basin and Vegetated Treatment Area

Land user BB&H Feedlot

Job description Settling Basin and Vegetated Treatment Area

Location Section 20 & 21, T11N, R50E, Prairie County, MT Office Miles City

A properly operated and maintained Water and Sediment Control Basin is an asset to your farm. This structure was designed and installed to trap sediment and provide storage to runoff water for beneficial use. The estimated life span of this installation is at least 10 years. The life of this installation can be assured and usually increased by developing and carrying out an effective operation and maintenance program. An effective operation and maintenance program includes:

- ☐ Periodically inspect the spillways and control gates for proper functioning including their ability to maintain the water level to design elevations. Remove any blockage or obstructions in spillways.
- ☐ Settlement or cracks in earthen sections must be investigated (to determine the cause) and repaired.
- ☐ Remove debris that may accumulate at the Water and Sediment Control Basin and/or immediately upstream or downstream from the Basin.
- ☐ Make sure all structure drains are functional and soil is not being transported through the drainage system. Screens and/or rodent guards must be maintained and in place.
- ☐ Maintain vigorous growth of desirable vegetation. This includes reseeding, fertilization, and application of herbicides when necessary. Periodic mowing or short term grazing may also be needed to control height.
- ☐ Maintain installed fences to prevent unauthorized human or livestock entry.
- ☐ Repair any vandalism, vehicular, or livestock damage.
- ☐ Remove rodents or burrowing animals that have or may damage the structure. Repair any damage caused by their activity.

OPERATION AND MAINTENANCE PLAN VEGETATED TREATMENT AREA

Operation and Maintenance Items

A properly operated and maintained vegetated treatment area is an asset to your farm. This vegetated treatment area was designed and installed to remove sediment and pollutants from runoff. This treatment area should be effective as long as an effective operation and maintenance program is followed. An effective program includes:

- ☐ Maintain vigorous growth of vegetative coverings. This includes reseeding, fertilizing and application of herbicides when necessary. Periodic mowing or short term grazing may also be needed to control height. Limit livestock usage to vegetative growth periods when vegetation root systems will not be damaged or soil compacted.
- ☐ Remove all foreign debris that hinders system operation.
- ☐ Avoid excessive travel on any portion of the system that will harm or destroy the vegetative cover.
- ☐ Repair any rodent, burrowing animal, vandalism, vehicle, or livestock damage.
- ☐ Maintain fences to prevent unauthorized human access or uncontrolled grazing.

Other

GENERAL NOTES

1. This design is based on a feedlot capacity of 2,500 head of calves. The drainage area of 22.4 acres consists of 17.4 acres of pens, 4.3 acres of roofs, 4.3 acres of alleys and roads and 0.3 acres of pasture. The manure will be spread on cropland according to an approved Comprehensive Nutrient Management Plan (CNMP). The leached liquid produced from the silage storage area will be stored for the first four weeks following the placement and packing of the silage in the storage area. It will then be evenly spread over a designated area according to the CNMP.
2. The waste utilization system is designed based on a 25 year, 6 hour event as per the Natural Resources Conservation Service's (NRCS) National Engineering Handbook (NEH), Part 631, Agricultural Waste Management (Agricultural Waste Management). This event yields a total runoff accumulation of 1.01 acre inches and a peak flow of 8.2 cfs from the feedlot area.
3. A settling basin will be installed upstream of the planned upper Vegetated Treatment Area (VTA) to collect solids from the feedlot area. Flows from the feedlot area will enter the settling basin from the east end and when the basin is full will flow out onto the upper VTA through four weirs. The planned VTA's are on existing fields that will require a limited amount of land planing to insure laminar flow across them.
4. After flow stops discharging from the surface of the settling basin to the upper VTA, the basin will be drained onto the lower VTA. Two 12" perforated sewer pipes with 4" orifice plates, located in the bottom of the settling basin, will feed an 8" diameter x 450' long pipeline to the lower VTA. The outflow through the 8" pipe will be controlled with a two shut-off valves.
5. Preparation of the VTA will include shredding or disposing of the existing vegetation, discing as needed and using a land plane to smooth the surface. The VTA will be divided into four individual 70' wide panels separated by 1.0' high border dikes. The producer will establish and maintain a permanent vegetative cover on the VTA as a grass-alalfa mix. Refer to Job Sheet --- for seeding instructions.
6. Maintain the shape and grade of pens to provide surface drainage to the settling basin.
7. Care shall be taken to ensure that weir bottoms are flat and level. They will be constructed of compacted gravel road mix.
8. Irrigation of the VTA's is planned to insure a healthy vegetative stand. It will not be irrigated to maximize production and will not be irrigated prior to impending precipitation.
9. NRCS makes no representation on the existence or non-existence of buried utilities. Call before you dig (800) 424-5555.

TABLE OF QUANTITIES

Planned	Constructed	Item
2219 cu yd		Settling Basin - Excavation
1539 cu yd		Settling Basin - Clay Fill
305 cu yd		Containment Dike - Fill
As Needed		12" Perforated Pipe
2 ea		4" Orifice Plate
2 ea		8" Shut-Off Valve
520 lin ft		8" PVC Pipe
70 lin ft		8" Gated Pipe
5.76 ac		Critical Area Seeding

QUANTITIES & NOTES

AFO/CAFO VTA EQIP 2012

B B & H

US DEPARTMENT OF AGRICULTURE - NATURAL RESOURCES CONSERVATION SERVICE

MONTANA

Approved _____

Checked _____

Drawn _____

Designed K. Weidinger/L. Cline _____

08/2012

Note _____

CAO FILE NAME

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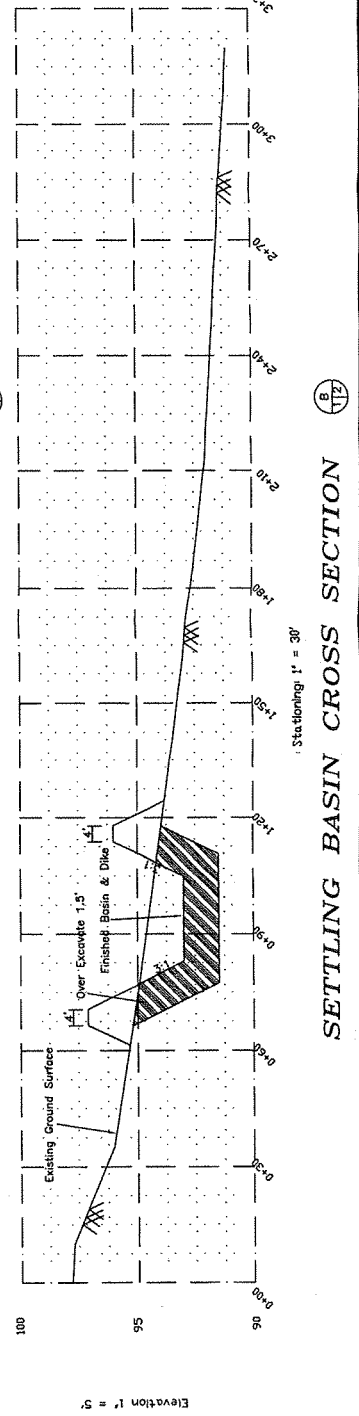
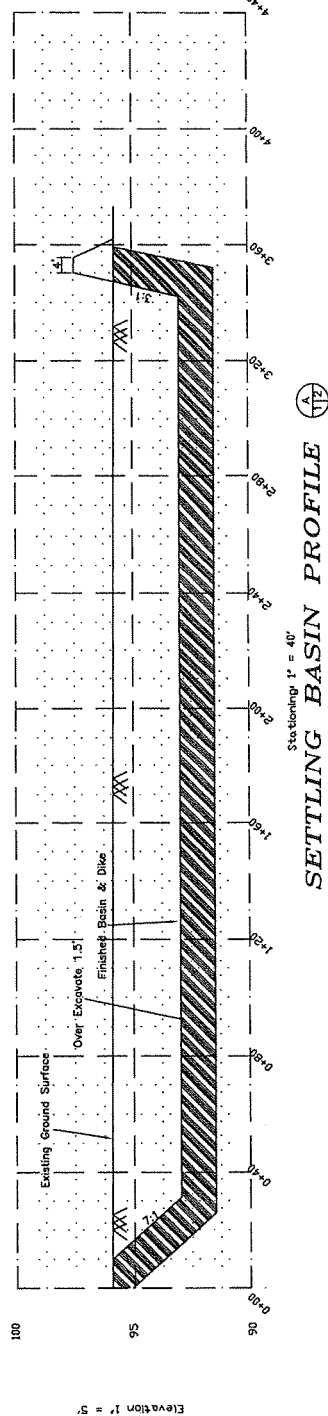
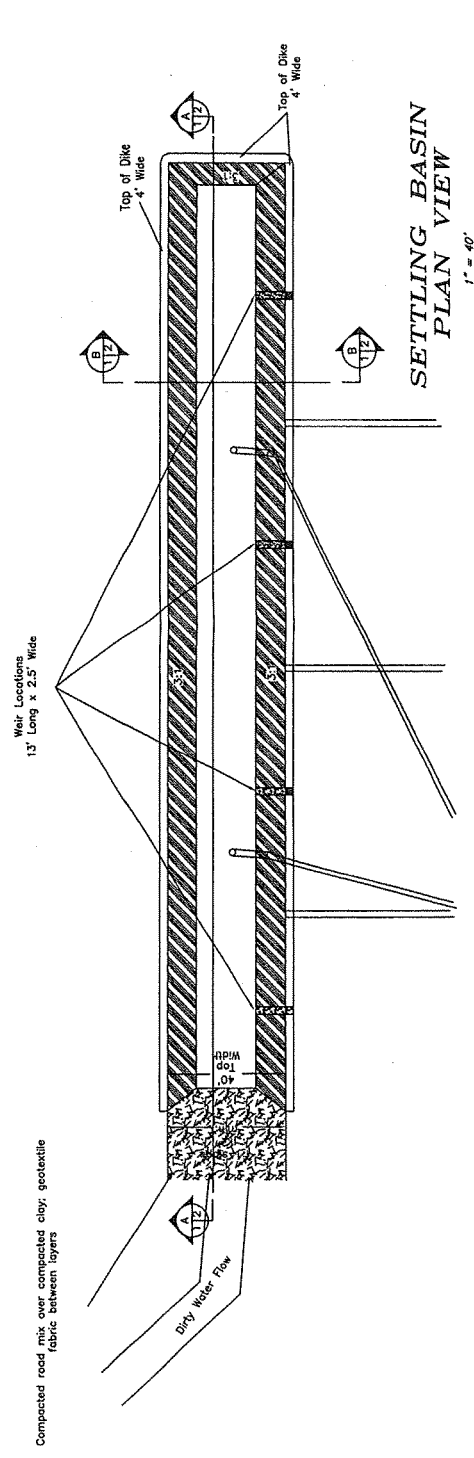
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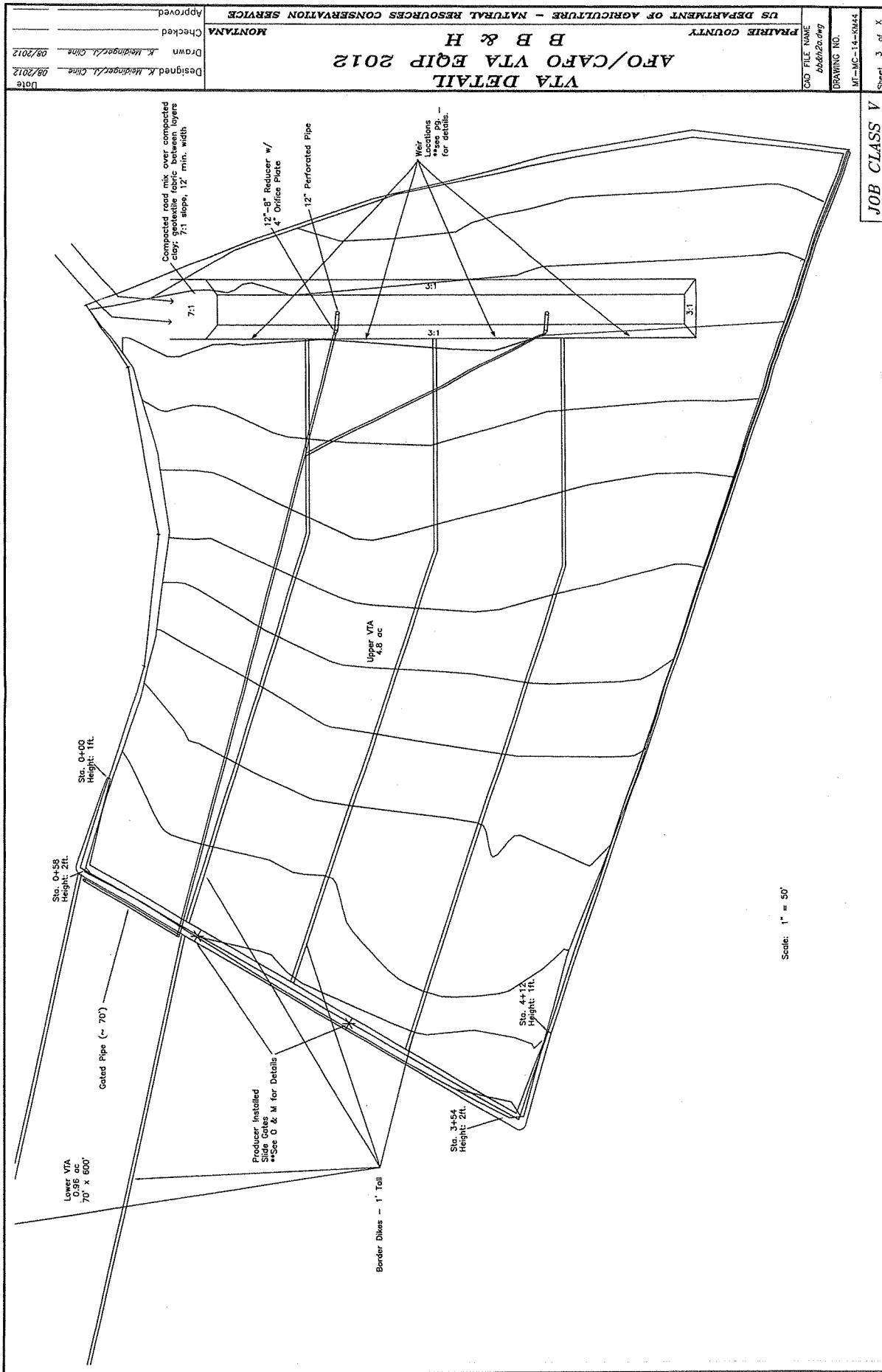
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Sheet 2 of X

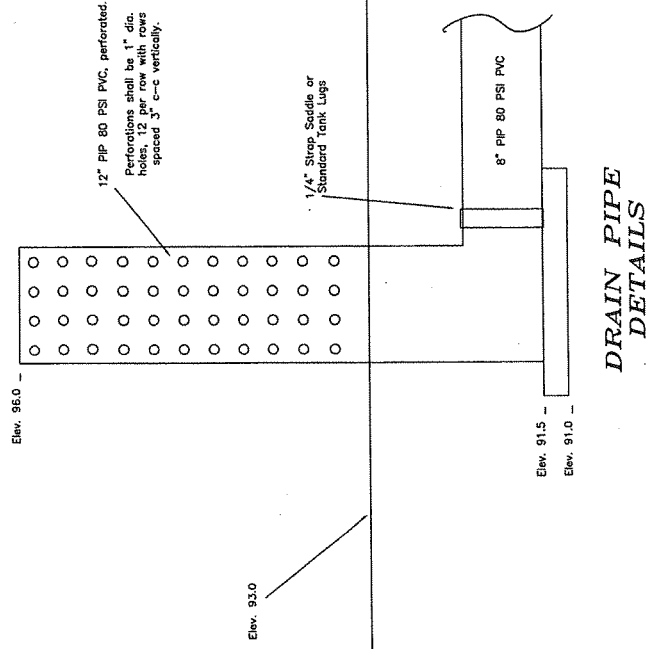
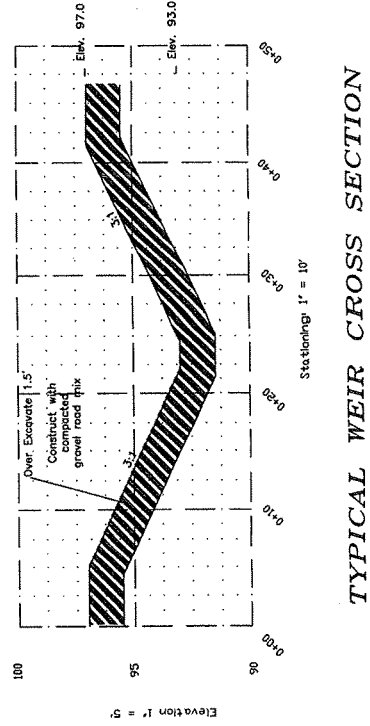
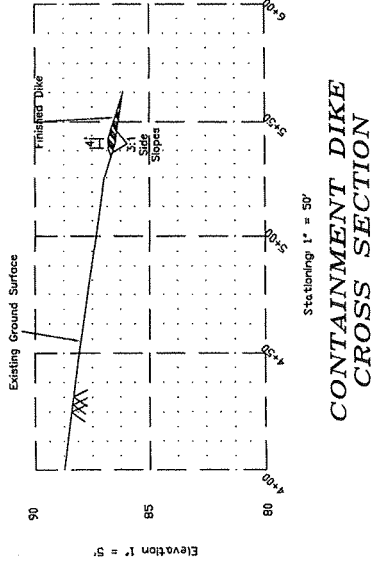
JOB CLASS V

JOB CLASS V





US DEPARTMENT OF AGRICULTURE - NATURAL RESOURCES CONSERVATION SERVICE MONTANA B B & H AFO/CAFO VTA EQUIP 2012 WEIR & DIKE DETAIL, DRAIN PIPE DETAIL		PRAIRIE COUNTY CAD FILE NAME bbb020.dwg DRAWING NO. MT-MC-14-0044 Sheet 3 of 3
Approved _____ Checked _____ Drawn K. Weidinger/J. Cline 08/2012 Designed K. Weidinger/J. Cline 08/2012 Date		



JOB CLASS V

INSPECTION PLAN
BB&H Feedlot
Water Settling Basin and
Vegetated Treatment Area

Prepared by:
Jerry D. Cline, Eng. Tech
Date: September, 2012

General:

The project consists of building a Water and Sediment Control Basin in addition to a Vegetated Treatment Area (VTA) for the BB&H Feedlot. This inspection plan outlines which items of work must be inspected, documentation required, and the approximate time involved for inspection.

Inspection Reports:

Inspection notes will be kept on inspection report MT-ENG-8 (copy attached), and in accordance with the National Engineering Manual. Inspection notes may also be entered in the Conservation Assistance Notes for the project.

Inspection Details:

- For each day of inspection, an entry shall be noted in the conservation assistance notes.
- Sufficient survey documentation shall be performed to assure that all grades conform to plans.

Water and Sediment Control Basin:

- The actual structure location will be determined at the time of layout. Any deviations in the staked location for the structure shall be approved by the NRCS prior to construction.
- Over excavation elevations will need to be surveyed prior to backfill with the designated clay material to insure that proper elevations are met. A minimum of 18" of compacted clay material is needed to line the basin. Check to see that the designated borrow source is being utilized.
- The finished floor of the basin will need to be surveyed to insure that the proper elevations are met.

Documentation:

- The as-built locations for the earth fill and pipe structures shall be documented on the drawings.

Outlet Pipe Works:

- Continual inspection may be required. An inspector should be on site at the start of the project and periodically thereafter to inspect the construction and installation. The outlet pipe works to drain the Settling Basin will consist of two 8" perforated PVC riser pipes and connected to an 8" 100# IPS outlet pipe. The pipe conduit will outlet to a PVC 90 degree elbow to which 8" gated pipe will be connected to transport water to the proposed lower VTA area.
- The following items will need to be checked to insure compliance with the plans and specifications:
 - Certification of the pipe materials used for the outlet pipe works. Diameter and length of both the Outlet pipe riser and conduit. Pipe markings on the side of the installed pipe will be sufficient documentation.
 - Invert elevation of the 8" pipe conduit.
 - Depth of cover over the 8" pipe conduit.

Documentation:

- Survey notes showing elevations on the structures (by NRCS or provided by contractor)
- As-built notes shall be made on the applicable drawings.

Compacted Earthfill on outside berms:

- Continual inspection will not be required. An inspector should be on site at the start of the project and periodically thereafter to inspect the construction and installation.

Documentation:

- Survey notes showing elevations on the structure (by NRCS or provided by contractor)
- As-built notes shall be made on the applicable drawings.

Backfill:

Continual inspection may be required on backfill materials.

Documentation:

- Documentation will consist of backfill materials used around the structure.
- Documentation of backfill can be made on the drawings.

Skills needed to perform task:

- Must have the surveying skills needed for construction staking, checking grades and elevations, and keeping proper notes.
- Must be able to visually determine suitability of backfill material around the pipe structures.
- Must be able to read a set of engineering plans and have a general understanding of the critical elements of the design.
- Must have the ability to maintain good communication with landowners and contractor.

Qualified Inspectors:

- Jerry Cline, Eng.Tech, Miles City Area Office
- Kathy Meidinger, SCT, Terry Field Office
- Other qualified inspectors that have a working knowledge of construction plans and specifications as well as knowledge of proper surveying techniques

Estimated Staff Time:

<u>ITEM</u>	<u>TASK</u>	<u>TIME (STAFF DAYS)</u>
Meeting with Contractor	Project site visit and explanation of plans and specifications	1
Excavation	Check excavation quantities	1
Backfill	Inspect backfill material	1-3
Riser Pad	Check elevations as needed	1
Pipe inverts	Check elevations as needed	1
Construction Check	Final construction check for project certification	1

Dates that Staff Need to Be Available for Inspection:

The work will likely start as soon as a contractor can be lined up to do the work. Actual on site inspections may be on short notice as the construction shall go rather quickly.

Inspector Availability:

The following personnel have the required skills and have committed to serve in their assigned functions for the duration of the contract.

Jerry D. Cline

Date

Kathy Meidinger

Date

NATURAL RESOURCES CONSERVATION SERVICE
MONTANA CONSERVATION PRACTICE JOB SHEET
FORAGE AND BIOMASS PLANTING (ACRE)

CODE 512

Landowner/Operator BB&H Field Number(s) 13
 Tract Number 14869 Design Soil Map Unit(s) 73
 Designed by K. Meidinger Job Class III Date 8-28-2012
 Land Use (check all that apply): ☐ Hayland ☐ Pasture ☒ Biomass ☐ Other: _____

Purpose (check all that apply):

- ☐ Improve or maintain livestock nutrition ☐ Provide or increase forage during low production times
☐ Reduce soil erosion ☒ Improve soil and water quality
☐ Produce feedstock for biofuel or energy production

PLANNED SEEDING

Plant Species (1)	Cultivar	LBS. PLS/Acre ¹ (pure stand) (2)	Percent of Mixture (3)*	PLS/AC. Needed in Mixture (LBS.) (col. 2 X col. 3) (4)	Acres to be seeded (5)	Total PLS Needed (LBS.) (col. 4 X col. 5) (6)
Pubescent Wheatgrass	Manska	10.0	50%	5.0	5.76	28.8
Alfalfa		5.0	50%	2.5	5.76	14.4

1. Planned Seeding Dates:

After Oct. 15, 2012

2. Seedbed Preparation (check all that apply):

- ☐ cultivated seedbed ☐ seed into stubble
☐ seed into chemical fallow ☒ other seedbed preparation

Description:

Seedbed will be disced lightly to eliminate existing vegetation then planed to ensure a firm, weed-free and smooth surface.

3. Fertilization: Follow 'Fertilizer Guidelines for Montana Crops' MSU Extension Publication #EB161 for forage plantings.

Soil test analysis: _____ N: _____ P: _____ K: _____

Recommendations: _____ N: _____ P: _____ K: _____

NRCS, MT
October 2011

VTA SEEDING SPECIFICATION

MT512-JS2

4. **Seeding:** Small grass, forbs, and legume seed will be planted no deeper than ½-inch. Large grass seeds shall be planted no deeper than 1-inch.

Planting implement
Traditional grass/alfalfa disc drill

5. **Management** of this planting during establishment will be in accordance with the following provisions:

Weed Control:

Seedbed will be weed-free prior to planting and weeds will be controlled during stand establishment to ensure a successful planting

Grazing:

Area will not be grazed

Haying:

Area will be hayed to encourage dense vegetative growth and to remove nutrients.

Other:

APPROVALS:

NRCS Conservationist

JOB APPROVAL AUTHORITY

Date

Producer

Date

CERTIFICATION

Plant Species (a)	Cultivar	Acres Planted ¹ (b)	Bulk LBS. Planted (c)	From Seed Tag ^{2 3}		Total PLS Planted (LBS.) (col. c X col. d X col. e) (f)	% Planted VS Planned (LBS.) (col. f ÷ col. 6)
				% Pure (d)*	% Germ (e)*		

¹ Date of Planting: _____² Date of Seed Analysis (from tag): _____³ PLS (Pure Live Seed) = Germination x Purity

* Need to be converted to decimal form for calculations.

CERTIFICATION:

I hereby certify that this practice has been installed in accordance with NRCS standards and specifications.

NRCS Conservationist_____
JOB APPROVAL AUTHORITY_____
Date_____
Date

Holmestead Cattle Company Clean Water Diversion Installed 1997

Culvert under
Interstate

Clean ditch
from Culvert
to Siphon

Settling
Basin
and VTA

Clean water Diversion

Legend

Practice name

- Diversion
- Clean Water Ditch
- Interstate Culvert and
Underground Clean Water Syphon

1 inch = 100 feet

CONSTRUCTION SPECIFICATIONS COVER SHEET
for

Land user BB&H
Job description Aq. Waste Mgmt. System
Location Sec. 20, 21, T11N, R50E
Planner D. Jewell Date 10.97 Checked by _____ Date _____
SCS Approval by David Jewell Date 10.27.97
Office Miles City Job Class 5

It is the responsibility of the owner to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to this construction.

Construction shall be in accordance with the following provisions, specifications and drawings and as staked in the field.

List of Drawings

MT-079-14 4 sheets

List of Specifications

MT-100	General Requirements
MT-102	Pollution Control
MT-104	Excavation
MT-105	Earthfill
MT-107	Rock Riprap
MT-112	Plastic Pipe -- Structures, Drains, Culverts
MT-348	Dam, Diversion
MT-412	Grassed Waterway
MT-425	Waste Storage Pond
	Operation & Maintenance Plan

Special Provisions

Special provisions are on attached sheets: ✓

Owner/Operator Review

I have reviewed the special provisions, drawings and specifications and agree to construct this project in accordance with them.

I acknowledge all responsibility for acquiring the necessary permits and/or easements and for compliance with all ordinances and laws pertaining to this construction.

Additionally I acknowledge responsibility for notifying all utilities affected by this project.

BB&H Ranch Co.

by James H. Beardley
Owner/Operator

11/13/97
Date

SPECIAL PROVISIONS
for

Land user BBH
Job description Aq. Waste Mgmt. System
Location Sec. 20, 21, T11N, R50E
Planner A. Jewell Date 10.27.97 Checked by _____ Date _____

Page 1 of 1

Reseeding of Disturbed Areas :

Feedlot Runoff Ditch - see attached Spec. 412

All other Disturbed Areas

1. Prepare a firm weed free seed bed 4" deep
2. Apply manure at 10-20 tons/acre
3. Plant Western Wheatgrass at
 - a. 12 lbs./ac. PLS - Drilled
 - or b. 24 lbs./ac. PLS - Broadcast
4. Plant between 10/15 and 5/1
5. Plant seed 1/2" deep.

Rock Riprap at Pipe Outlet :

Use locally available Sandstone, well graded and
angular, 9"-18" in size.

Operation and Maintenance Plan Ag Waste Management System

BB&H Feedlot

Decision Maker: Jim Beardsley
Address: Miles City, MT
Phone Number: 232-6454 or 554-3474

General:

Your agricultural waste management system has been planned and designed to manage waste generated from the pens in the feedlot in a manner that prevents or minimizes degradation of soil, water, air, plant and animal resources, and protects public health and safety. The system has been planned to preclude discharge of pollutants to surface water from up to a 25 year, 24 hour storm event, to minimize ground water contamination, and to recycle the waste produced through soil and crops to the fullest extent possible.

System Description:

This ag waste management system was designed to handle the 25 year frequency storm runoff from the 32 acre feedlot site. Current cow numbers are 850, or 590 animal units. Components of the system include a clean water diversion dike, a clean water diversion pipeline, a waste runoff ditch and a waste storage pond.

Decision Maker Responsibilities:

You are responsible for the proper installation, operation, and maintenance of the waste management system. Although the system was designed by the Natural Resources Conservation Service using the best available technology, you must recognize that if the system is to operate as planned and designed, it needs to be inspected, properly operated and maintained in a safe manner. You are responsible for obtaining a permit from the Water Quality Division, Montana Department of Health and Environmental Sciences. You will operate and maintain the system in accordance with this permit and other laws and regulations that pertain to its operation.

It is your responsibility to make an inventory of each function and develop check lists necessary for preventative maintenance and inspection.

Component Installation Sequence:

The following sequence is recommended:

1. Clean Water Diversion Dike
2. Clean Water Diversion Pipeline
3. Waste Storage Pond
4. Waste Runoff Ditch

Production Function Requirement:

The system design was based on waste production estimates for 800 calves with an average weight of 675 pounds and 50 yearling bulls with an average weight of 1000 pounds.

Collection Function Requirements:

Liquid manure runoff will be collected and diverted as it flows across the Buffalo Rapids Canal Siphon. An open ditch will carry the runoff to the waste storage pond. A small percentage of solid wastes may be transported with the liquid wastes. All solid wastes remaining in the pens in the spring when the cows are removed will be scraped, collected, hauled and spread directly on irrigated cropland.

The ditch will be inspected regularly for signs of erosion or over-topping. Any problems will be addressed promptly.

Storage Function Requirements:

The waste storage pond has been designed to provide 180 days of storage from manure and polluted runoff water. No spillway has been provided, however, the storage capacity has been doubled and an additional 1 foot of freeboard has been designed into the dike.

It is anticipated that normal runoff will evaporate after a short ponding period. Therefore, the storage area may be viable for hay production during most years. Large, infrequent storm events will fill the pond. When this occurs the pond should be emptied by pumping to maintain the desired level of protection. The pond should also be emptied if necessary in the fall when the cows are entered into confinement.

The vegetative cover on the dike shall be maintained. Weeds and woody vegetation will be controlled with herbicides. Herbicides will be applied according to the label instructions.

The storage pond shall be inspected at least annually and after unusual storm events. The dike will be inspected for leaks, slope failures, erosion, and excessive settlement. Repairs shall be made promptly.

Transfer Function Requirement:

Liquid waste will be pumped from the waste storage pond as needed with a portable pump. The slurry will be transferred and spread onto adjacent irrigated cropland during the growing season. Solids which are scraped from the pens will also be transferred and spread onto adjacent irrigated cropland during the growing season.

Care shall be used in scraping the pens to protect and maintain the hard-pack layer which acts as a seal to prevent seepage and pollution of the ground water. All equipment will be maintained in accordance with the manufacturers recommendations. Equipment operated on public roads will be signed in accordance with appropriate laws and regulations. Care shall be taken to minimize spillage on the roadways.

Clean Water Diversions - Function Requirements:

The diversions consist of 600 feet of 24" HDPE pipe and 1024 feet of earthfill dike. These diversions are planned to minimize the amount of clean water that flows into the confinement area and thereby minimizing the size of the waste storage area. So it is critical that these diversions are properly maintained.

The pipe backfill and rock outlet shall be inspected regularly. Any settlement of the backfill shall be promptly repaired. Any displacement of rocks or erosion at the outlet shall also be promptly repaired.

The vegetative cover on the earth diversion dike shall be maintained. The dike will be inspected for erosion, slope failure and excessive settlement. Repairs shall be made promptly.

Both the pipeline and dike shall be inspected annually and after unusual storm events.

Utilization Function Requirements:

Liquid waste from the pond and solids scraped from the pens will be surface applied to at least 30 acres of silage corn.

The nutrients available in the waste will not exceed the agronomic requirement for the yield goals of the crops if applied uniformly to the entire acreage. Additional commercial fertilizer may be needed to maximize production.

Solid and liquid manure will only be applied and incorporated during the crop growing season to minimize the potential runoff. No waste will be applied during the winter months or during frozen soil conditions.

Guards and shields on moving parts of the pumps, manure spreader and other portable equipment will be maintained at all times of operation. Other safety precautions will be recommended by the equipment manufacturers.

Decision Maker Acknowledgment:

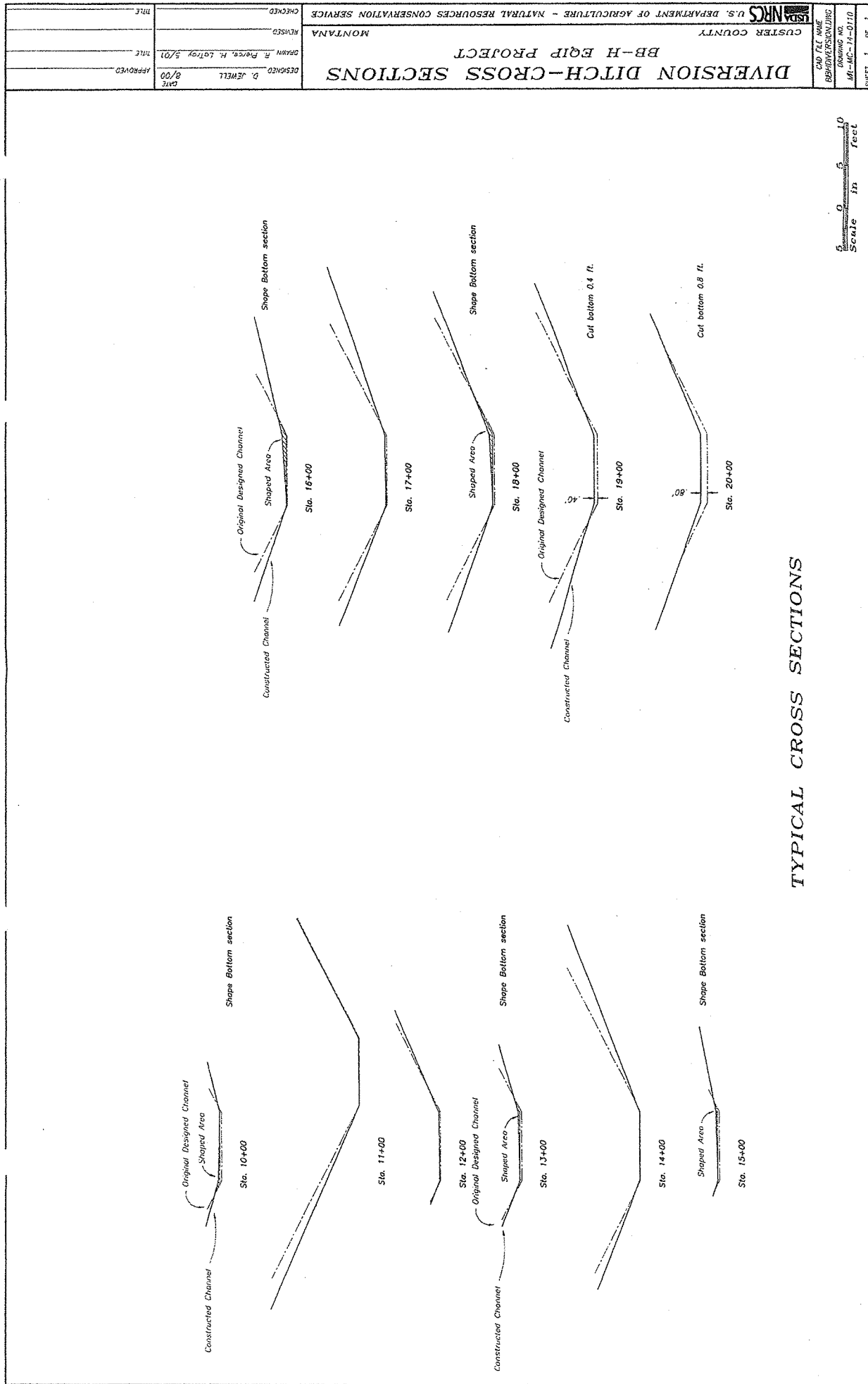
I certify that I have read this plan and understand its contents.

BB&H Ranch Co
by James H Beardsley D.

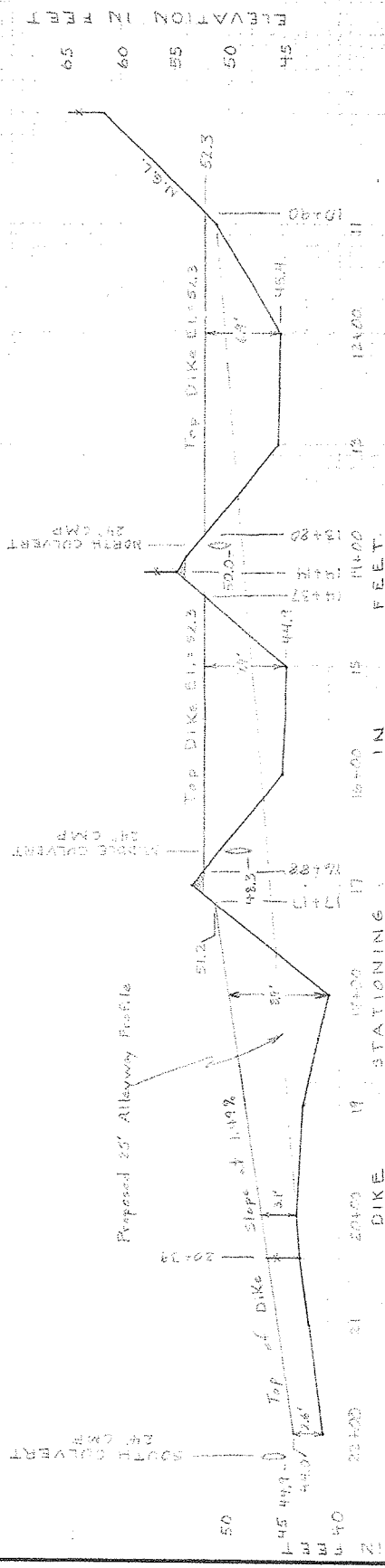
Jim Beardsley

11/13/97

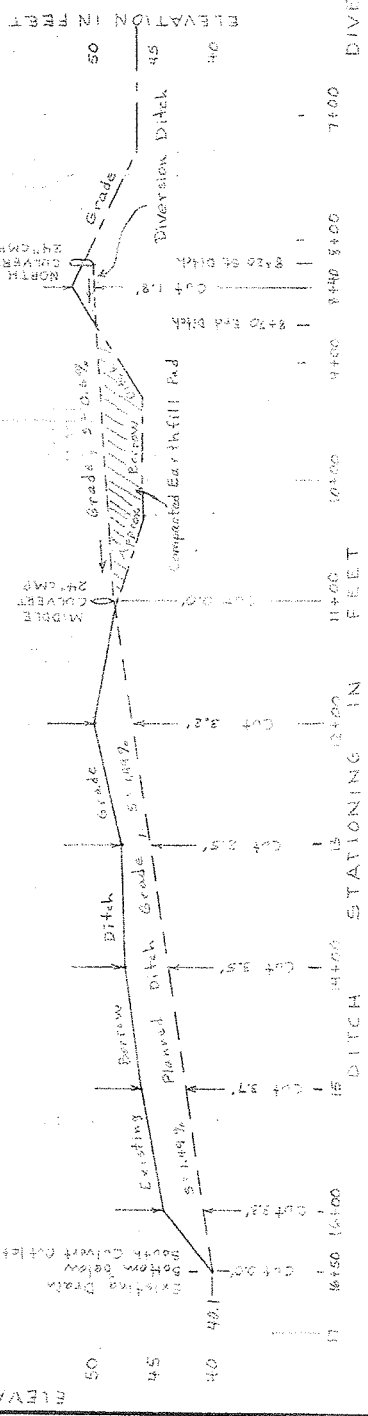
Date



4 PROFILE DIVERSION DIKE 20' WEST R/W FENCE



4 PROFILE HYW. R/W AND DIVERSION DITCH



QUANTITIES	REMARKS
EARTH EXCAVATION	2300 CY
COMPACTED EARTH	1500 CY
	XX 4215 CY*

* Dike only - does not include alleyway pad.
 ** Includes pad and small dike of middle pipe outlet.

NOTE: STATIONING IS DIFFERENT BETWEEN DIKE AND DITCH PROFILES.

DIVERSION DITCH TYPICAL X-SECTION



DIVERSION DIKE/ALLEYWAY TYPICAL X-SECTION

